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On GRAPTÆ INTERROGATIONIS and FABRICII of Edwards.

BY J. A. LINTNER.

In a paper published by Mr. Edwards in the Transactions of the Entomological Society, Vol. III. No. 1, entitled "*Notes on Graptas C-aureum and interrogationis*—FAB.," exception is taken to my determination, as given in a late number of the Transactions, of the large red-wing Grapta as *interrogationis*, and the black-wing (*umbrosa*) as an undescribed species, and the conclusions are drawn by the writer, that the latter is the *interrogationis* of Fab., and the former, the *C-aureum* of the same author, which name being preoccupied, may therefore be designated as *Fabricii*. A careful consideration of the paper, fails to convince me of the propriety of these conclusions.

The uncertainty and confusion which attends the *C-aureum* of Fab., is almost without a parallel. In 1775, Fabricius gave one line and a half of descriptive text to a butterfly or to a figure of one which he had before him, having on its under surface a golden or a silver character in the form of a C or that of an interrogation point (probably the former), which was, or was supposed by him to be the *C-aureum* described by Linnæus in 1760: this determination would make of it an Asiatic Vanessa, now generally regarded as identical with the *Angelica* of Cramer. In 1781, in *Spec. Ins.*, it was again referred by him to the same species. In 1793, in *Ent. Syst.*, he continues the same reference, but complicates it by also referring it to a figure of a *C-aureum* given by Cramer in 1779 of an individual from Jamaica, and of a very different type from the Asiatic species.

In 1797, Abbot and Smith figure a *C-aureum* or "American Comma Butterfly," as occurring in Georgia and in Virginia, and unite under it both of the above species of Linnæus and Cramer, with this qualification: that inasmuch as "Fabricius, observing the tail to the hind wings of his species, reformed the Linnæan specific character," and "as the specimen of Linnæus has much less of a [caudal] projection, * * * * * possibly the Asiatic kind may be distinct from the American."

In 1819, Godart regarded the *C-aureum* of Fabricius, as having been erroneously referred to the Linnæan Asiatic species, but as identical with the *C-aureum* of Cramer and of Abb., Sm., and made of it a male for an American species (assumed to be a female) described by Fabricius in 1798 under the name of *interrogationis*, retaining this name for the two "sexes" thus brought together. Of his "male" he

says, its under surface is "wood gray, undulated and variegated with brown,"—a description altogether too vague to enable us to determine the species which he had in view.

Boisduval and Leconte's *C-aureum*, throws no light upon the subject, but only additional obscurity. Their text calls for falcated wings, which their plate does not present: their synonymy embraces too much, and the specific characters which they give, appear to be borrowed from the three species with which we are now acquainted, and of which they speak as "varieties."

There is reason for much of this confusion, for in the *C-aureum* of Fab., we are burdened with a name, without the ability of knowing, after all our study, to what particular insect it properly belongs. The meagre descriptions in Syst. Ent. (1775), Spec. Ins. (1781) and Ent. Syst. (1793), which are the three that we have, are verbatim transcripts of the Linnæan description in Syst. Nat. (1760), with the exception of the substitution of "dentato-caudatis" for "angulatis." Of this latter text Mr. Edwards says, "the above indefinite description applies to either of our large species, or indeed, excepting the silver mark, to any *Grapta* then or now known." It follows therefore, that the Fabrician descriptions are, by Mr. Edwards, placed in the same category of inexplicable obscurity.

Although we are able to assert on the authority of Mr. Edwards, that the Fabrician descriptions of *C-aureum* are inadequate to indicate it, yet he claims (in lit.) that the author "has accurately described both of our species" (*interrogationis* and *umbrosa**), and maintains this view in the remarks and in the synonymy of the paper under consideration. As such accurate description of *interrogationis* is not to be found in the specific characters assigned to *C-aureum*, it follows that the evidence for the identity of the two which Mr. Edwards discovers, is to be sought extraneously, in some reference or by implication. The following are the three reasons advanced in the paper, to show their identity:

First: Fabricius in 1793, refers his *C-aureum* to Cramer's figures, which "purport to represent an American species" (Edw.).

Second: Fabricius in describing his *interrogationis* says of it, *nimis affinis P. C-aureum*. "Now Fabricius could not have said that his *interrogationis* was 'extremely like' *Angelica*, Cramer (that is *C-aureum* of Linnæus) therefore he must have intended [Mr. Edwards infers] to compare it with *C-aureum* of Cramer.

* These designations of the red-wing *Grapta* and of the black-wing, given in my former paper, are continued throughout this.

Third: "the words *glaucae striga punctorum nigrorum* twice repeated * * * * * also determine this *C-aureum*."

To the above it may be answered :

I. Fabricius has in no instance given America as the habitat of his insect, but distinctly says of it "habitat in Asia." Before charging him with the grave error of assigning to one quarter of the globe what really came from the very opposite, there certainly should be stronger evidence of its American origin than a casual reference to Cramer's figures. These figures are so coarsely executed that it is proposed by Mr. Edwards to reject them: the description (if the few words relating thereto may be so called) is most indefinite; and the author expresses a doubt whether, although sent to him from Jamaica, it may not be the same as another species "represented on Plate V, fig. E, indicated as having come from China" (cited by Godart, Enc. Meth. p. 304, as *Vanessa Progne*). Even if we were to assume with Mr. Edwards the identity of the *C-aureum* of Fab. and of Cramer, the species of the former would not be determined thereby, for there is a strong probability that the latter does not represent our *interrogationis*, but will prove to be a southern form of *Grapta*, as yet unnamed.*

II. The inference from "*nimis affinis* * * * *C-aureum*" might have been properly drawn, if it could be shown that there are only these two *Graptæ* closely resembling one another, either now known or hereafter to be discovered. On page 7 of his paper, Mr. Edwards notices "the remarkable resemblance between these species and *G. comma*." On the same page, he indicates a fourth species, *Dryas*, nearly allied.

Mr. Scudder, in the *C-aureum* of Abb. Sm. and Cramer has detected a fifth species. The careful study which our Diurnals have of late years received, has in several instances revealed undoubted specific characters, where formerly only varietal differences were thought to exist. Thus in *Grapta*, during the last eight years, from three old species, five others have been educed, while the same number of species of *Nisoniades*, have rewarded rigid scrutiny with an addition of six new forms.

In view, therefore, of the new species recently described, and the probability of other North American ones yet undetected, it must be

*Since the above was written, it appears from a notice in the Proceedings of the Boston Society of Natural History, vol. xiii, p. 276, that Mr. Scudder, from material recently obtained, has determined this species to be identical with that of Abb. Sm., and proposes for these forms the name of *G. Crameri*. Specimens of the species have been received by Mr. S. from Texas and other southern districts. If Fabricius is correct in his reference to Cramer's figures, then it appears that his *C-aureum* is equivalent to this newly detected species.

evident that we are not authorized to predicate of a butterfly, indicated a century ago in another country, by a few *generic* characters applicable (with a trifling exception) "to any *Grapta* then or now known," and unrepresented by even so much as an outline figure—that because it may not resemble a certain *Vanessa*, therefore it must be one of the two allied *Graptæ* with which we are at the time acquainted; or, as in another instance, to be referred to hereafter, that because we deem the evidence sufficient to show that another indefinite description does not refer to one of two interrogation-marked *Graptæ*, therefore the other must be the one intended. A specific determination made six months ago upon such a basis, would be already invalidated by the detection of Mr. Scudder's *Cramerî*, and its validity for the future, would necessitate a favorable argument in its behalf, just so often as upon the wings of a new species, a silver query should obtrude itself.

III. The error of restricting the *glaucous shade* and the *black points* to *umbrosa*, thereby determining *interrogationis*, will be shown when discussing the former species.

That our *interrogationis* cannot be the *C-aureum* of Fabricius and Cramer, would seem to be evident from the following considerations:

It has not, as its characteristic feature of so great distinctive value as to suggest its specific name, a *golden* mark. Godart's *interrogationis* is "*argenteo-notatis*." Boisduval and Leconte's *C-aureum* has "*une tache argentée*." Edwards critically written description of *Fabricii* gives it "an interrupted *C silver* spot." Of the numerous specimens reared by me from the larvæ, in which the hues are of their maximum brilliancy, none could with propriety be designated as *golden* marked—all are *silver*—although, when especially sought for, a slight yellowish tinge like that of *german-silver* can sometimes be detected.

The golden character required in *C-aureum* is a *C*; that presented by *interrogationis* is not a *C*, but an interrogation point: hence it follows from Mr. Edwards' argument that it cannot be the latter species, for he states that Boisduval and Leconte having described among the varieties of their *C-aureum*, those having "a silver spot sometimes in form of a *C* * * * * * these authors seem to me to have included *Grapta comma* Harris, then undescribed, as a third species, that species being distinguished by an uninterrupted *C*, a character unknown to me in the others;"—i. e. if the mark indicated be a *C*, the species can neither be *interrogationis* or *umbrosa*. And yet we find no intimation in this paper, that *comma* may have been the veritable *C-aureum* of Fabricius, although we are shown how it combines the characters of *interrogationis* and *umbrosa*, in that its "largest speci-

mens are equal in size to the smallest of these; the form is sometimes that of one, sometimes of the other; the color of the upper side is between the two; the spots precisely the same; on the under side, the same words would describe the males of *comma* and *interrogationis* [*umbrosa*] varying only the shade of color; the lines, basal space, spots, dots, patches, stripes and metallic marginal spots are all the same except in color." (Edw.)

The *C-aureum* of Fabricius must be smaller than his *interrogationis*, for of the latter he writes "affinis P. C-aureo et paullo major." Our *interrogationis* is not only larger than *umbrosa*, but it is the largest known Grapta, for its expanse is, "♂, 2.5 to 2.7; ♀, 2.6 to 3 inches" (Edw.): while *umbrosa* averages ♂, 2.25; ♀, 2.50 inches. In order, therefore, that Mr. Edwards' determination of these species may be correct, it is required that we accept the larger one as the smaller of the two.

To regard *comma* as the *C-aureum*, Fab., would meet two of the preceding objections which effectually preclude *interrogationis*, but so long as from the insufficient data furnished us, we may not positively say what the species really is, it does not seem worth our labor to determine what it may possibly be.* Would it not be better wholly to reject it from our synonymy, than to give it place therein, with the unsatisfactory appendage of a query point.

If Mr. Edwards has erred in determining our *interrogationis* to be the *C-aureum* of Fab., then it follows that it may still be entitled to bear the name by which it has been so long known.

Notwithstanding our inability to decide positively as to Fabricius intending by his *interrogationis* our northern red-wing species, inasmuch as it has been generally known to entomologists by that name—has been repeatedly figured as such—as the description of Fabricius is applicable to it—and as the name belongs to one of the Graptæ, there would seem to be great propriety in our regarding it as *interrogationis*, FAB. To do so, will prevent the confusion which would attend the transfer of the name to another species—an annoyance to which it

* I am incorrectly quoted on page 2 of the paper under consideration, where it is given as my determination that "both Cramer's and Abbot's figures represent the male of the species which has a red upper surface and much falcated wings," and again on page 4, that in my opinion "the latter [*C-aureum*, Fab.] was intended [by Fabricius] to represent the male of the other species [*interrogationis*]." My having inadvertently written *interrogationis* instead of *C-aureum* on page 314, line 37, in Trans. Am. Ent. Soc. vol. ii, was doubtless the foundation of these inferences. I had not at the time, have not now, nor expect to have hereafter, any opinion as to what Fabricius' *C-aureum* represents.

would be proper to subject us, only in consideration of the warrant therefor, resting on no indefinite constructions.

If, however—in strict obedience to a law of zoological nomenclature, which demands that a name to have authority, must be accompanied by “a definition giving a distinct exposition of essential characters”—it should be deemed proper to deny to Fabricius the authority of the name, then our species should be known as *interrogationis*, Godart, for while that of Fabricius *may be* our red-wing Grapta, that of Godart given in his supplement, and quoted in vol. ii, page 318, of these Transactions, could be no other of the species now known to us, for his description of its coloration and ornamentation is so accurate as to leave no room for doubt. The *interrogationis* first defined by Godart, on page 302 of his volume, should probably be rejected, as it calls for the falcated primaries of *interrogationis*, and the blue-black secondaries of *umbrosa*—features which are not combined in any known species. Subsequently, finding himself in error, he gives in a supplement, another description marked *duplicata*, which seems to be intended not to supplement but to take the place of the former. It would have relieved us from some perplexity, had he presented the reason for this second description. It was evidently deemed by him to be quite important, for of the seventeen hundred and forty-nine species of Diurnals described in the volume, but four others are given in duplicate; of these we are told that two had been originally described from the male only, one from an imperfect specimen, of the other a wrong female had been given, but wherein the error of the former text of *interrogationis* consisted, we are left to conjecture.

The description of the *duplicata* covers both sexes, with some special features of the female particularized. There are no longer black hind-wings, and except that the expanse is rather limited, every word of it may be applied to our red-wing Grapta.

It is possible that all doubt existing with respect to this species, may yet be resolved, by the examination of the original Fabrician specimen, which Mr. Edwards states is still preserved in the collections of the British Museum, but of which he has been unable to obtain any representation or satisfactory information.

Having endeavored to show that there exists no good grounds for believing that our *interrogationis* may have been the *C-aureum* of Fabricius, we will next examine the reasons for the determination of Mr. Edwards, that *interrogationis*, Fab., is identical with my *umbrosa* and adduce some evidence against such determination.

The reasons as given in the paper, are two, the first of which is, that

Fabricius describes his species as "subtus glaucis." This, Mr. Edwards says, applies to the female *umbrosa* alone, of the males and females of the two species. If this were so, his determination might be admitted. But I have in my collection abundant material to prove conclusively, that either there is an error in his conception or restriction of "glaucis," or, as might naturally be expected from the "great variation" (Edw.) in *interrogationis*, the individuals which have come under his observation, are differently shaded from mine. I have now before me eighty-five *ex larvæ* specimens of *interrogationis*, and with no other motive than the proper solution of the question at issue, I affirm, that of the two species, the "*subtis glaucis*" applies in a greater degree to *interrogationis* than to *umbrosa*. I have placed my specimens of these two species before gentlemen familiar with the colorational terms employed in natural history, with the request that they would indicate which of the four (counting sexes) the best met their conception of "glaucous," and in each instance, the females of *interrogationis* were unhesitatingly designated. I would premise, that at this remote day, we should be at fault were we to decide upon the precise shade which Fabricius intended by *glaucis*, of the many which its present range embraces, whether bluish-grey, grayish-blue; bluish, sea-green, dull green, or a bloom like that upon a plum or cabbage-leaf. Although the shade by which Mr. E. prefers to define *glaucis*, might not be selected as the best expression of the suffusion of *interrogationis*, it is quite certain that its peculiar bloom at once calls up to the mind of the observer, a superficial deposit like that upon a cabbage-leaf, which a touch of the finger would serve to remove.

The second feature of Fabricius' description, cited to prove his *interrogationis* to be *umbrosa*, is the "*striga punctorum nigrorum*," and in reference to these, it is asserted that "*umbrosa* of the two species, is the one distinguished in both sexes by a band of distinct black points crossing both wings." True; but Fabricius does not claim to describe both sexes, and indeed Edwards asserts that he knew but one: nor does he state that the black points are *distinct*, and that they *cross* both wings in a band, but simply that there is "a row of black points." This requirement is fully met by *interrogationis*, and to show more is superfluous. Even in the female a row of points is visible, and might properly be made a feature in its description, when compared with a *Vanessa* where they are wanting. These points, instead of being of specific value, are a generic feature, occurring in the *Graptæ*, in *Faunus*, *comma*, *Dryas*, *interrogationis*, *umbrosa* and *J-album* alike.

If then, the glaucous shade and black points common to both of the

species under consideration, fail to determine to which of the two the disputed name may pertain, an additional consideration will serve to show that it cannot be applied to *umbrosa*, unless we consent to set aside Fabricius' description as of no determinative value. He says of it, "wings, tailed, *fulvous*, spotted with black." This cannot possibly be made to cover *umbrosa*, in which the anterior wings only are fulvous, while the posterior ones are *black*. We revere the honored name of Fabricius and freely recognise the debt we owe him for his untiring, life-long entomological researches, and the voluminous records of his labors left us. Would it not, therefore, be most unkind to charge upon him the inexcusable blunder of writing *fulvous*, where it should have been *black*? And if, as the result of inaccurate diagnoses and erroneous reference on his part, another of his species requires to be re-named, might not the bestowal of his name upon it, in the errors which it commemorates, be regarded as ironical rather than complimentary? It cannot be urged that the extreme brevity of his descriptions—rarely equaling and never exceeding three lines—prevented the distinction being made between the anterior and posterior wings, for in a volume before me, I find in his descriptions "anticis" and "posticis" occurring, as often as the discrimination seems necessary.

Unable to discover, upon a careful review of former examinations, and a full consideration of Mr. Edwards' paper, any good reason for the belief that Fabricius or any other author had described *umbrosa*, it is with regret that I find myself compelled to differ from the determinations of one, whose studies, specially directed for years to our Diurnals, have eminently qualified him for the solution of questions of doubtful synonymy, and to whom we are indebted, as the fruit of such studies, for a delineation of "American Butterflies" so beautiful and faithful, as to win for the author from a distinguished source, the appellation of "the AUDUBON of Butterflies." From such authority, it may be deemed presumptuous in me to appeal.

N. Y. State Museum of Nat. Hist., November, 1870.

MYRMOSA, Latr.

1. **Myrmosa unicolor**, Say, Nar. Exped. St. Peter's River, App. p. 66.

Hab.—Pennsylvania; Missouri.

METHOCA, Latr.

1. **Methoca canadensis**, Smith, Cat. Brit. Mus. Hym. III, p. 67.

Male.—Black and shining, slightly villose, face closely punctured. Thorax coarsely punctured, with a central transversely ridged channel. Wings hyaline, faintly colored. Basal half of the first abdominal segment rugose, base of the segments depressed, their margins constricted.

Hab.—Canada.

2. **Methoca Poeyi**, Guér. Icon. Reg. Anim. Ins. p. 430, ♂ ♀.

Hab.—Cuba.

ERRATA.

Page 220, line 49, *for pex read apex.*

Page 201, line 44, *for Addomen read Abdomen.*

Page 223, line 21, *for coccineochirta read coccineochirta.*

Page 226, line 16, *for similima read simillima.*

Page 227, line 4, *for subhexagonal read subhexagonal.*

Page 228, line 30, *for cloth read clothed.*

Page 232, line 5, *for vate read ovate.*

Page 235, line 43, *for arrowed read narrowed.*

Page 244, line 33, *for balopilus read Balopilas.*